

Agenda

- Purpose of Report
- Regional Wastewater Disposal Solution
- Opinion of Costs
- Opportunities and Challenges

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Purpose of Report

- Consider alternatives to improvements at Exeter's WWTF
- Identify feasibility of conveying wastewater to the City of Portsmouth Pease WWTF.
- Develop costs for regional option
- Identify challenges and opportunities
- Compare to costs and plans developed in Facility Plan

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Background

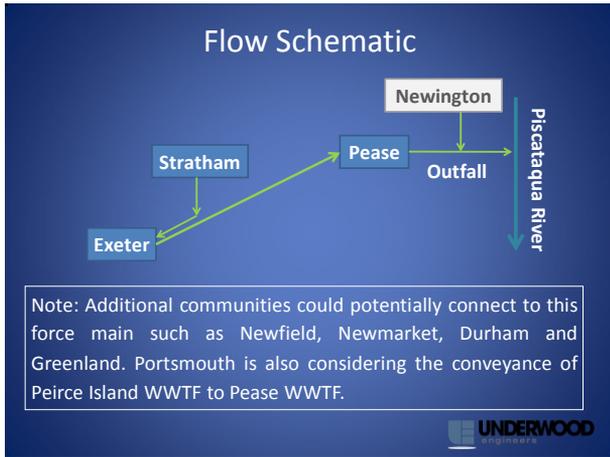
Exeter

- WWTF was issued an EPA Administrative Order on Consent (AOC)
 - Nitrogen discharge limit set at 3.0 mg/L
 - Would have to build new WWTF to meet stricter regulations by June 2018

Stratham

- Currently does not have a WWTF
- Interested in providing wastewater collection and treatment to its Business District
- Working with Exeter jointly

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Design Flows

Table 1 : Summary of Flows¹

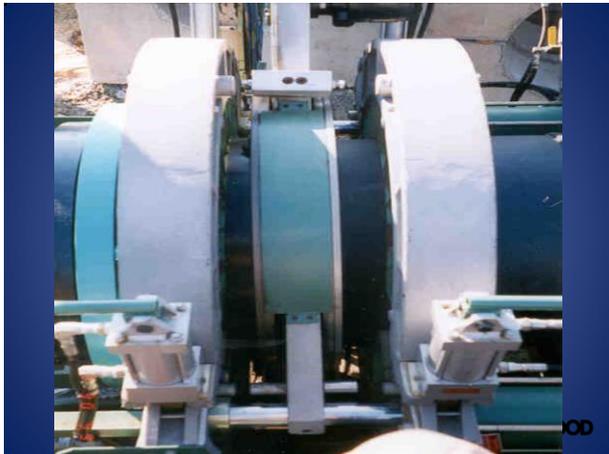
Town	Buildout Flow (MGD) from Reports	20 year Flows (MGD)	Current Flows (MGD)
Exeter (Equalized)	3.0	2.6	~1.6
Stratham (Equalized) ²	0.675	0.4	0 ²
Pease ³	1.35	1.35	~0.6
Total	5.025	4.35	~1.8

1. Although not in the table, it should be noted that Newington discharges 0.4 MGD into the Pease WWTF outfall prior to discharge into the Piscataqua River. Greenland has prepared a sewer build-out study and identified potential sewer flows of 0.174 to ~.34MGD
2. Stratham is currently served by on-site individual private septic systems.
3. The Pease WWTF is currently designed for 1.2 MGD capacity.

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- ### Exeter WWTF Improvements
- Existing headworks to remain
 - New pump station located at the Exeter WWTF
 - Wet well with an equalization tank sized for diurnal flows
 - Decommission lagoons (1 lagoon to remain for stormwater flow equalization).
 - Maintain outfall for possible future use as stormwater discharge .
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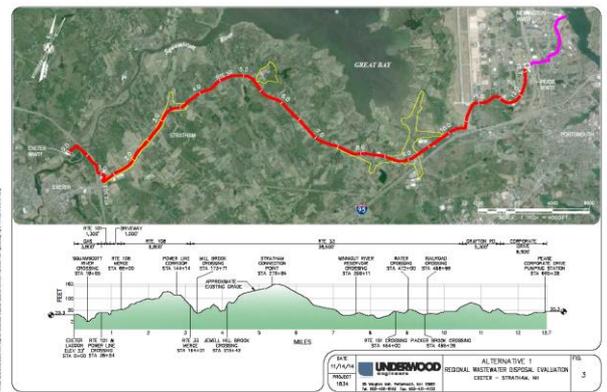
- ### Conveyance Piping Hydraulics
- 3 HDPE Pipe sizes were evaluated: 18", 20", and 24"
 - **20" SDR9 HDPE Pipe**
 - Meets present and future flows
 - cost effective solution for wastewater conveyance.
 - HDPE Pipe selected
 - Cost-effective
 - Similar uses
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3 Routing Alternatives

- Alternative 1 – NHDOT ROW Route
- Alternative 2 – Utility ROW Route
- Alternative 3 – Utility ROW Route





Alternative Comparison

Corridor Segment	Alternative 1	Alternative 2	Alternative 3
Existing Utility Corridors	3,800	35,500	40,900
Town/State Road	61,800	28,000	19,000
Private Drive	1,500	1,600	0
TOTAL	67,100 ft. 12.7 Miles	65,100 ft. 12.3 miles	59,900 ft. 11.2 miles
Opinion of Cost	\$32.8 M	\$31.4 M	\$29.6 M



Pease WWTF Improvements

- Construction of a new headworks
- Construction of new sequencing batch reactors (SBR) based on equalized flow from Exeter.
- Construct additional primary clarification



Pease WWTF Improvements

- Other modifications including disinfection, biosolids processing, and storage
- Replace approximately 50% of conveyance to outfall
- Extend or modify outfall



Possible Peirce Island Option

- Permitting requirements for increasing discharge into the Piscataqua River are unknown.
- Effluent may have to be pumped to Peirce Island's outfall
- Would cost an additional \$10M as shown in the estimated high range costs





Summary of Costs Based on 20 Year Flows

	Summary of Low Range Opinion of Costs	Summary of High Range Opinion of Costs
Conveyance and Exeter PS	\$33M	\$33M
Pease WWTF and Outfall	\$33M	\$43M
Total Capital Costs	\$66M	\$76M
O&M (Exeter Pumping Station)	\$0.7M	\$0.7M
O&M Pease WWTF	\$2.9M	\$3.9M
Total O&M	\$3.6M	\$4.6M
Present worth (20 Years)	\$133M	\$156M



Project Schedule

	Year 1	Year 2	Year 3	Year 4	Year 5
Design Conveyance					
Design Pease Treatment					
Permitting/IMA					
Construct Conveyance					
Construct Treatment					
Begin Operations					*

AOC Deadline = June 2018



Opportunities

- Conveyance system may be adequate for additional communities
- Direct sanitary discharge into the Squamscott River and Great Bay is eliminated
- Exeter Combined Sewer Overflow (CSO) would be eliminated or reduced because of stormwater storage at the lagoons



Opportunities

- Regional solution would create a larger user base, reducing WWTF user rates
- May improve wastewater treatment at Pease due to increased non-industrial flow
- Solution is consistent with the Southeast Watershed Alliance mission statement
- Long-term solution



Challenges

- Increased flow to Pease outfall may be an issue with regulatory agencies (EPA, NHDES, and FDA)
- Scheduling (AOC Deadline)
- Possible Private ROW access issues
- Need to obtain intermunicipal approval



Recommendations

- Compare regional costs to those costs presented in the pending Facility Plan.
- Develop criteria for decision with Portsmouth.
- Monitor Portsmouth's discussion on conveying Peirce Island's sanitary waste to Pease. This may provide additional cost incentives to a regional Pease option.



Questions and Answers

